

# GOOD HEALTH

Editor: JOHN HARVEY KELLOGG, M.D., LL.D., F.A.C.S.

Waking Up at Last to the  
Trichinae Plague

Common Dietetic Errors

The Emotional Stomach

Signs of Heart Disease

Why People Become Intoxicated

DEVOTED TO HYGIENE AND RACE BETTERMENT  
AND THE DEVELOPMENT OF AN ARISTOCRACY OF HEALTH



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PUBLISHERS.

# GOOD HEALTH

Devoted to Hygiene and Race Betterment and the Development  
of an Aristocracy of Health

Edited by DR. JOHN HARVEY KELLOGG

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# Waking Up at Last to the Trichinae Plague

*by Dr. John Harvey Kellogg*

FOR MORE than fifty years, the writer has been warning the public against the danger of infection with trichinae from eating pork, and endeavoring to awaken the responsible government authorities to a sense of their duty to protect the American people against this oncoming horde of repulsive parasitic worms.

Fifty years ago, investigations made in the postmortem department of Bellevue Hospital, New York City, showed that one in seventeen of all the bodies examined contained trichinae. Recent government investigations show that at the present time, an average of one person in five, of the men, women and children living in the United States, carry about uncountable numbers of trichina worms in their muscles; and now the custodians of our national health are beginning to pay some attention to this appalling menace of nation-wide proportions, having waited until at least one half of the adult population of the country have become the harbingers of a loathsome parasite for which there is known to be no cure, even no amelioration of its mischievous effects.

German authorities have long since attributed to this muscle-dwelling parasite the pains

which are generally attributed to muscular rheumatism, and so little study has been given to the subject that no one knows how many other miseries the harboring of millions of these sharp-nosed worms which bore their way into the muscles from the alimentary tract may entail.

The U. S. Department of Agriculture within the last few years has been sending out every now and then a circular calling attention to the increasing prevalence of trichinosis and informing the public that ordinary cooking does not destroy them. In an investigation of twenty-four outbreaks of trichinosis, the pork had been cooked in twenty-two out of the twenty-four.

The government has undertaken to stay this invasion of the trichina worm by informing and reforming all the housewives and cooks of America by instructing them how to cook pork so thoroughly that the filthy parasites will be killed before they are eaten, the assumption being that Americans have become so fond of stewed and roasted and fricasseed trichina worms that they can not be persuaded to dispense with them. However patriotic and altruistic the aims of our government officials may be, the results will be fruitless. The steady, on-

ward march of the parasite will continue until every man and woman in America, with the exception of a few vegetarians and pork abstainers, will be carrying about in his muscles a population of parasites many times equal to all the inhabitants of the globe.

The only way to end the trichina plague is to prohibit the raising and selling of hogs for human food, or the thorough sterilization of all pork before it is offered for sale. Our public officials are doubtless as well aware of this as is the writer and any one who will give the matter a moment's consideration, but the hand of authority will doubtless be stayed until some inquisitive pathologist discovers that trichinae are a cause of cancer or heart disease, or arteriosclerosis, or some other major killing agency in which it may well be a factor, before any effective measure for coping with this long well-known parasitic enemy of human life will be set in operation.

Here comes a letter from the U. S. Department of Agriculture, dated February 26, announcing a leaflet giving a picture of the "Cook Pork" poster, in which the department advises everybody to eat pork, but to take care that it is thoroughly cooked.



It is most gratifying to see that the Department of Agriculture is waking up at last to the importance of making some definite effort to protect the people of the United States from the destructive effects of the trichina parasite. The fact that one person in seven of the total population is infected is certainly abundant reason for bona fide effort to stop this infection by parasitic worms.

The wholesale character of the infection is clearly shown by the fact that the government has ceased to inspect hogs for trichinae, and takes it for granted that all hogs are infected, or likely to be trichinae carriers.

We are glad to quote the following from the leaflet referred to:

"The seriousness of this ailment depends on the number of live trichinae in the pork eaten. Slight infestation following the consumption of moderate quantities of lightly infested pork that is raw or imperfectly cooked may pass unnoticed or may cause but slight illness. But the consumption of heavily infested pork or of large quantities of raw or imperfectly cooked pork that is lightly infested may produce a painful and sometimes fatal attack of trichinosis. Common symptoms are nausea, vomiting, diarrhea,

severe abdominal pains, general dullness, weakness, twitching of muscles, and sensations of tension and pain in the muscles. In later stages of the disease the eyeballs may become inflamed or show small hemorrhages. Swelling of the legs, forearms, abdominal wall, and face may occur, sometimes with skin eruptions. Muscular pain is an outstanding symptom of trichinosis. Fever is commonly present during the first stage of the disease, reaching its height in about ten days after the first symptoms. The symptoms are by no means constant, and typical cases have sometimes been diagnosed as typhoid fever, undulant fever, meningitis, and other diseases. When patients are seen by a physician within a few days after eating the trichinous pork and the disease is correctly diagnosed, some good may follow attempts to expel the parasites from the digestive tract."

While it is true that a light infection with trichinae is not likely to prove fatal, it is important to remember that there is no remedy for this disease and that each infection, even though light, brings with it an addition of millions of parasites to those already swarming in the muscles.

As regards the main sources of trichinosis, the leaflet tells us that

"Outbreaks of trichinosis occur at all seasons of the year but usually in winter, especially during the holidays when various products containing pork are eaten without proper cooking in some households. Besides fresh pork and sausage, and smoked hams and shoulders, and bacon that may not be thoroughly cooked, such products as smoked sausage, boneless loins, capicola, coppa, and forms of dry or summer sausage, if prepared in establishments not operated under Federal meat inspection or other competent inspection, are the main sources of trichinosis in this country.

"There are cases of entire families being stricken as a result of eating uncooked or improperly cooked sausage or other products made from the meat of one hog. Even tasting uncooked sausage during its preparation to ascertain when the seasoning is satisfactory may cause trichinosis. The consumption of hastily cooked hamburgers consisting of a mixture of ground beef and pork is likely to cause trichinosis."

Evidently pork is a good thing to let alone. Of course, it is better to kill the trichinae before you swallow them, but what is there to be desired in a diet of worms?

## Air Conditioning for Hospitals

AIR CONDITIONING has proved its value in business. A large field is open for it in hospitals. Obviously if it is advantageous for the well, it may be far more so for the sick. It controls the temperature, humidity, purity and movement of the air. After much experimentation, engineers have worked out what is known as a comfort zone. In summer the temperature maintained for comfort is about 71 degrees, with a relative humidity of forty to sixty per cent. In winter the ideal is found to be 66 degrees, and forty to fifty per cent humidity.

Dr. Mathew N. Hosmer describes in *Hospitals* his experience with air conditioning at St. Luke's Hospital, San Francisco. Three rooms were fitted up, with separate installations, so that individual needs might be met. The plan has proved a distinct aid in the treatment of patients suffering with acute and chronic sinusitis, acute bronchitis, asthma, hay fever and allergic skin conditions.

The most striking results were obtained in acute upper respiratory infections. There were ten patients needing operations who had such maladies.

After perhaps forty-eight hours in the air-conditioned rooms, they were in shape to go to the surgeon's hands. Attacks of acute purulent pansinusitis lost much of their usual severity in these rooms. Some asthmatic patients were greatly helped; others showed no improvement, depending on the cause of the disease. The relief from hay fever was temporary. Such sufferers should have air filters installed in their bedrooms. Complete conditioning is not necessary. Acute allergic dermatitis yields readily to the treatment.



# Carbohydrates—Starches and Sugars

by Dr. John Harvey Kellogg

(Continued from March)

## Cane Sugar

THE WORLD'S production of cane sugar in 1914 was 42,000,000,000 pounds. Americans use more than any other people.

At the close of the Revolutionary War, the per capita annual consumption of sugar in this country was 7.5 pounds. It is now about 103 pounds. The consumption of sugar has increased in this country since 1900 at the rate of 1 per cent a year. Diabetes has doubled its death rate in the same period.

Cane sugar was made from bamboo before the sugar cane was used for this purpose. Sorghum has been grown for sugar making in China for centuries. The Indians made sugar from the maple, hickory, birch and watermelon, and the natives of Mexico prepared sugar from the juice of the century plant in pre-Columbian times.

Of the many sorts of sugar known to the chemist only five enter to any considerable extent into our ordinary dietary. These are *sucrose* or cane sugar, *maltose* or malt sugar, *lactose* or milk sugar, *dextrose* or grape sugar, and *levulose* or fruit sugar.

Of these several sugars we are most familiar with cane

sugar, which is derived commercially from the sugar cane, sorghum, beet root and maple tree. Cane sugar is the sugar of trees, roots and grasses. It is also found in a few fruits, especially certain varieties of the date.

In the ripening of fruits, cane sugar is converted into glucose and levulose. These sugars are formed from cane sugar by a digestive change identical with that which takes place in the human body. When cane sugar is eaten, it is slowly converted into levulose and dextrose, for cane sugar in its native form cannot be utilized by the body. It must first undergo a digestive process, as does starch. But unlike starch, the digestion of cane sugar does not begin in the mouth, but is delayed until the sugar reaches the intestine.

The enormous consumption of cane sugar in this country, four times that of many other civilized countries, and the growing prevalence of the candy habit as the result of the diligent fostering of the practice by energetic manufacturers, justify the inquiry whether or not the present extravagant use of the sugar of commerce is wholesome or safe.

Atchison Robertson, in carrying out a series of experiments, injected half pint of a 20 per

cent solution of sugar into the stomach of a patient who was suffering from chronic gastric catarrh. "Shortly afterwards the patient became sick, and vomited a very acid fluid which put his teeth on edge. He also complained of heartburn and flatulence, and of a severe pain in the region of the stomach." Another experiment was the injection of a solution of fruit sugar (levulose) of the same strength, which produced no discomfort. The experiment was repeated with similar results in other cases of dyspepsia, and in every case the invert sugar produced no unpleasant symptoms. Schule found that from two to six lumps of cane sugar, when taken in an ordinary test breakfast, produced no appreciable effect on the digestion, but when the quantity was increased from ten to twenty lumps, considerable delay of digestion ensued, by reason of "the great outpouring of mucus in the stomach."

Brandl, an eminent German chemist, observed, in experiments upon a dog, that a solution of cane sugar having a strength of less than 6 per cent caused irritation, with reddening of the mucous membrane. A 10 per cent solution produced a dark red color with great irritation; and a 20 per cent solu-



tion gave rise to still greater irritation, and produced such distress that the experiment was terminated. The author has met many cases of grave stomach disorder in which evidently the chief cause was the free use of sugar either in the form of candy or in connection with the use of coffee, oatmeal mush, or other "breakfast foods."

Ogata, in experimenting upon dogs for the purpose of determining the effects of cane sugar upon digestion, observed that the addition of one-third of an ounce of cane sugar to a meal of meat reduced digestion one-fourth.

The Germans made years ago extensive experiments with sugar as a means of supporting muscular work, extending their experiments to horses and other animals as well as soldiers. They found that while the sugar showed remarkable sustaining qualities, it was impossible to use more than a comparatively small amount on account of the irritating effects upon the stomach.

Sugar is freely used by rowing clubs in Holland, and it is reported that it seems "to counteract the bad effects of a meat diet so that the dreaded symptoms of overtraining did not appear." This fact is very interesting as an indication that the effect of overtraining is due to the large quantity of meat consumed. Sugar is antitoxic. When freely used it not only lessens the amount of meat consumed, because of the limitation of the calorie intake, but also through its antitoxic influence combats intestinal putrefactions encouraged by a heavy meat diet.

Molasses is much used in sugar-producing regions as food for horses and dairy cattle. The so-called black strap molasses is commonly fed in quantities of eight to twelve pounds per head. As a food a good quality of molasses is preferable to sugar for the reason that it is rich in iron and lime.

## Dextrin

Dextrin is a product intermediate between starch and dextrose. The chemical composition of the three substances is essentially identical, except that in the change from starch to sugar, water is added to the molecule. Dextrin is found in plant juices and fruits. It is present in commercial glucose and in malt sugars to the extent of about 30 per cent. Dextrin may be produced not only by the digestion of starch but by the action of mineral acids and by heating at proper temperatures. The crust of bread and the browned portion of toasted bread contain dextrin. Dextrin has been recently shown to have special value as a means of changing the intestinal flora. When it is taken in doses of three ounces three times a day for several days in succession (7 to 10 days), the putrefactive flora disappears and acid-forming bacteria become dominant. The stools cease to have a putrid odor.

## Dextrose or Grape Sugar

Dextrose or grape sugar is the sugar of grapes. It is found in most fruits with levulose in about equal quantities. Dextrose is formed from starch and from other sugars by the process of digestion and may be produced from various carbohydrates by chemical processes. All the sugars of foods are converted into dextrose before they are utilized by the body. Dextrose is the chief source of bodily energy. It is the body fuel *par excellence*.

## Glucose

Glucose is a saccharin product prepared by boiling cornstarch with a dilute mineral acid until the starch is partially converted into dextrose. It contains both dextrose and dextrin. So-called brewers' sugar is a form of glucose containing about 70 per cent of dextrose. What is known as "80 sugar," or "acme sugar," contains 80 per cent of dextrose. Practically all the cheaper grades of candy, and probably some of the higher

grades, consist very largely of glucose. This is a cheap form of sugar about half as sweet as cane sugar.

## Malt Sugar

There is found in grains ferments or diastases similar to the ferments of the saliva, which are capable of first liquefying starch and then converting it into sugar. These ferments become active in the process of germination, and by the conversion of the starch in the seed furnish food for the young plant. Sprouted or malted barley has long been used in civilized countries for the conversion of starch into sugar in the manufacture of beer. The same process of sugar making has been employed in Japan for at least two thousand years. The Japanese make from rice, corn, millet, and sweet potatoes a preparation which they call *ame*, a sweet substance which appears in the form of a thick amber colored liquid and also in hard, white masses resembling candy. *Ame* is much used in Japan, and was in common use there hundreds of years before cane sugar was known in Europe.

It has been experimentally determined (Hammond), in the feeding of infants, that an infant is able to oxidize half a dram of lactose per kilogram of body weight, or practically one-fourth dram per pound. If the quantity is increased 50 per cent beyond this, sugar appears in the urine. The same is true when cane sugar is fed; but in the case of malt sugar, more than three times as much sugar may be given before sugar appears in the urine. In other words, malt sugar is utilized by the infant more than three times as well as is milk sugar or cane sugar. From this it clearly appears that malt sugar is greatly preferable to any other form of sugar as a foodstuff. Cane sugar, the sugar of grasses, is adapted to the digestive organs of herbivorous animals. One of the four stomachs of ruminants supplies a ferment which

(Continued on page 124)



# Why People Become Intoxicated

by Count Leo Tolstoy

WHENCE THE USE of intoxicating substances, — of whiskey, wine, beer, hashish, opium, tobacco, and other less common substances, — ether, morphine, muscarine? Why did it begin, and why has it so rapidly spread among all kinds of people, among savages and civilized men alike? What does this mean, that wherever there is no whiskey, wine, or beer, there is opium or hashish, muscarine, and other substances, and tobacco everywhere?

Why must people become intoxicated?

Ask a man why he has begun to drink wine and continues to do so, and he will answer you: "For no reason, it is agreeable, all men drink," and he will add: "For a pastime." Others, again, who have never once given themselves the trouble to think out whether it is good or bad that they drink wine, will add that wine is wholesome, gives strength; that is, they will say what has long ago been proved to be untrue.

Ask a smoker why he began to smoke tobacco and still continues to do so, and he will answer: "For no reason, from tedium, everybody smokes."

In the same way, no doubt, will answer the users of opium, hashish, morphine, muscarine.

[A work by Count Leo Tolstoy entitled, *Walk in the Light While Ye Have Light*, published nearly fifty years ago, and long out of print, was presented to us by the late Count Ilya Tolstoy, son of the great humanitarian philosopher. This unique book is a compilation of essays on a variety of topics, all definitely related to human welfare, many of which we are sure will be of interest to GOOD HEALTH readers. Beginning with the present number, we shall reproduce four short chapters entitled, *Why People Become Intoxicated*.—Ed.]

"For no reason, from tedium, for pleasure, everybody does so." But it is good, *for no reason, from tedium, for pleasure, because everybody does so*, to twirl the fingers, to whistle, to sing songs, to play the pipe, and so forth, that is, to do something for which it is not necessary to waste natural riches, nor to spend great forces of labour, to do something which does not do any palpable evil to oneself or to others. But for the production of tobacco, wine, hashish, opium, millions and millions of the best lands are taken up, frequently among populations in need of land, by plantations of rye, potatoes, hemp, poppy, grapevines, and tobacco, and millions of labourers — in England one-eighth of the population — are busy all their life producing

these intoxicating substances. Besides, the use of these produces terrible calamities, which are known to all and recognized by them, and from which more men perish than from all wars and infectious diseases taken together. And people know this; so this cannot happen *for no reason, from tedium, for pleasure, only because all do so*.

There must be something else in this. One constantly and everywhere meets people who love their children, who are ready for their good to make all kinds of sacrifices, and who at the same time spend on whiskey, wine, beer, or opium, or hashish, or even tobacco, what would either completely provide for their suffering and starving children, or would at least free them from privations. It is evident that if a man, who is put to the necessity of choosing between the privations and sufferings of his family, which he loves, and abstinence from intoxicating substances, none the less chooses the first, he is incited to do this by something more important than because everybody does so and because it is agreeable. Evidently this is not done *for no reason, from tedium, for pleasure*, but there is some more important reason.



This reason, so much as I have been able to understand it from reading about this subject and observing other people, and especially myself, when I used to drink wine and smoke tobacco, according to my observations, consists in the following:

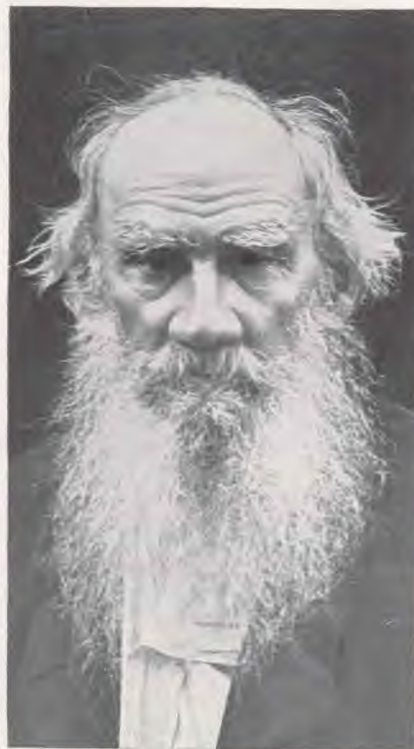
During the period of his conscious life a man may frequently observe two separate beings in himself: one — a blind, sensuous being; the other — a seeing, spiritual being. The blind, animal being, eats, drinks, rests, sleeps, breeds, and moves as moves a wound-up machine; the seeing, spiritual being, which is bound up with the animal being, does not do anything itself, but only estimates the activity of the animal being by coinciding with it when it approves of this activity, and disagreeing with it when it does not approve of it.

This seeing being may be compared with the hand of a compass, which with one end points to the north, and with the other to the opposite, the south, and which along its whole extent is covered by a strip that is invisible so long as that which carries the hand moves in its direction, and which steps out and becomes visible as soon as that which bears the hand declines from the direction pointed out by it.

Similarly the seeing, spiritual being, whose manifestation in life we call conscience, always points with one end to the good; with the other, the opposite end, to evil, and we do not see this so long as we do not decline from the direction given by it, that is, from evil to good. But we need only commit an act which is contrary to the direction of our conscience, and there appears the consciousness of the spiritual being, which indicates the deviation of the animal activity from the direction indicated by the conscience. And as a navigator would not be able to continue to work with the oars, the engine, or the sails, knowing that he is not going whither he ought to go, so long as he did not

give to his motion the direction which corresponds to the hand of the compass, or did not conceal from himself its declination, so also any man who has come to feel the doubling of his conscience with the animal activity, cannot continue this activity unless he brings it into harmony with his conscience or conceals from himself the indications of his conscience as to the irregularity of the animal life.

Man's whole life, it may be said, consists only in these two activities: (1) the bringing of



Count Leo Tolstoy

its activity into harmony with conscience, and (2) the concealment of the indications of his conscience for the sake of continuing life.

Some do the first, others the second. In order to accomplish the first, there is but one method, — a moral illumination, the increase of light in oneself, and attention to what it illuminates; for the second, — for the concealment of the indications of conscience, — there are two methods: an external and an internal one. The external method

consists in occupations which distract the attention from the indications of conscience; the internal one consists in the obscuration of conscience itself.

As a man is able in two ways to conceal from his view an object in front of him, by an external distraction of attention toward other, more striking objects, and by a soiling of the eyes, so also may a man conceal from himself the indications of his conscience in a twofold manner: by an external distraction of attention through all kinds of occupations, cares, amusements, plays, and by an internal soiling of the organ of attention itself. For people with a dulled, limited moral sense, external distractions are frequently quite sufficient to prevent their seeing the indications of conscience as to the irregularity of life. But for morally sensitive people, these means are frequently insufficient.

The external methods do not completely distract the attention from the consciousness of the discord between life and the demands of conscience; this consciousness impedes life, and men, to have the possibility of living, have recourse to the indubitable inner method of the obscuration of conscience itself, which consists in the poisoning of the brain by means of intoxicating substances.

Life is not such as it ought to be according to the demands of conscience. The strength is lacking to turn life in accordance with these demands. The distractions which may divert one from the recognition of this discord are insufficient, or they have become tedious, and so, to be able to continue to live in spite of the indications of conscience as to the irregularity of life, men poison, for a time stopping its activity, that organ through which the indications of conscience are manifested, just as a man who purposely throws dust into his eyes would conceal from himself what he does not wish to see.



# Common Dietetic Errors

## Overeating

**A**N EXCESSIVE intake of food is much more common than a deficiency. The average person has little appreciation of the fact that there is no definite relation between the bulk and weight of food and its nutritive value. For example, a pound of almonds has more food value than twenty pounds of cabbage, cauliflower or eggplant, or fifteen pounds of beets, carrots or string beans.

So it is possible for one to overeat by unduly distending the stomach with bulky food, such as coarse vegetables or juicy fruits, while the quantity of nutriment absorbed may really be insufficient to nourish the body. On the other hand, one may easily take a great excess of nourishment, although the actual weight and bulk of the food consumed be small.

The general bad effects of overeating are an excessive gain in weight, dullness after meals, drowsiness, insomnia, indigestion. It is to be noted, also, that overfed people are more likely to suffer from cancer than the underfed. According to Williams, cancer is almost unknown among the poorly-fed Hebrews of East London, but is very common among the wealthy Jewish bankers of Hyde Park. Bright's disease, arteriosclerosis, high blood pressure, and apoplexy are also among the consequences of overfeeding. In time, the stomach breaks down from overwork; flatulence, hyperacidity, disorders of the liver and gall-bladder and hemorrhoids are among the common results.

It is always to be remembered that what would be only a sufficiency or even not enough for a hard working laborer might easily be a great excess for a man of sedentary habits.

The method of serving the food in successive courses, and especially the plan of arranging the bill of fare in such a way as to encourage eating to excess by presenting the most highly palatable dishes last, is productive of great mischief. Desserts consisting of rich dishes, such as ice cream, pastry and confectionery, are on this account to be condemned. Persons who are addicted to overeating should adopt the plan of eating at the beginning of the meal a considerable quantity of bulky food, such as spinach, cabbage, turnips, carrots, lettuce, etc. By this means, the sense of satiety may be induced before an excess of nourishment has been swallowed.

Special injuries may result from an excess of particular food principles: for example, an excess of fat leads rapidly to obesity and induces so-called "biliousness" by causing too long retention of foodstuffs in the stomach and of food residues in the colon, thus promoting intestinal putrefactions. Intestinal toxemia induced in this way is the explanation of the injury suffered from eating an excess of fat, rather than "clogging" of the liver, the popular explanation.

Persons whose stomachs do not produce a sufficient quantity of gastric juice and those suffering from intestinal toxemia,

the result of chronic constipation, should especially avoid an excess of fat. The oil enema, sometimes employed for the relief of constipation, may do harm by promoting intestinal putrefaction and by interfering with gastric digestion. On this account, paraffin oil should be used for this purpose rather than olive or linseed oil, for the reason that it is non-absorbable, has no effect upon the digestive processes, and does not undergo either fermentation or putrefaction. An enema consisting of equal parts of buttermilk and starch water, prepared by boiling an ounce of starch in a quart of water, is preferable to the oil enema.

Less injury, perhaps, is likely to follow from an excessive intake of starch than from any other quantitative error in diet, as it taxes the digestive process less than any other food principle and produces less disturbance of metabolism. This cannot be said, however, of the carbohydrate, sugar, the reverse being true; especially in relation to cane sugar, the excessive use of which not only induces disorders of digestion, particularly hyperacidity, but is very probably one of the chief causes of diabetes as well as of chronic gastric catarrh. The free use of cane sugar also leads to lime starvation. Malt sugar is much less likely to produce gastric or nutritive disturbances; and the free use of milk sugar, because of its slow absorption, may become a valuable means of changing the flora by promoting the growth of acid-forming organisms in the colon.



Eating an excess of protein is one of the most grievous of all dietary faults. It may be rightly regarded as one of the leading causes of chronic disease, through the intestinal toxemia which results from the putrefaction of undigested residues of meat and other proteins in the colon and the absorption of indol, phenol and other putrefaction products. Bright's disease, rheumatism, cancer, gastric ulcer, skin disorders, neurasthenia, insomnia and a long list of chronic disorders directly or indirectly due to intestinal toxemia are among the evil results of a high protein diet.

The researches of Rubner, Chittenden, Sherman, Folin and others supply a scientific basis for the view that one calorie of protein for each pound of normal body weight is sufficient to supply all the nutritive needs of the average individual. This amount of protein will be well supplied by a pint or even by half a pint of milk, according to the size of the individual, even though eggs as well as meat are excluded from the dietary. A few ounces daily of soy beans, almonds or other nuts will also fully meet the demand. If meats are discarded from the bill of fare, and eggs and milk are used in moderation, the ordinary mixed diet will usually furnish a sufficient amount of protein.

Injury may result from making the bill of fare consist too largely of cereals, such as are supplied by ordinary breakfast foods. Cereals introduce into the body an excess of mineral acids, and when used too freely may lead to a preponderance of acids in the body, including a mild form of acidosis, with lowered vital resistance and impaired nutrition. If the cereal intake of the average individual were reduced one-half by substituting an equivalent amount of farinaceous material in the form of potatoes and other vegetables, the results would be a great improvement in our national health. Potatoes are rich in alkaline salts, which neutralize the excess of acid found in cereals

as well as those produced by the cell activity of the body. These useful salts are also found in fruits. The preponderance of acids found in meats is four times as great as that found in cereals, hence the injury from a heavy meat diet is so much the greater.

### Underfeeding

Underfeeding is most frequently observed among the women and children of the poorer classes. Invalids, also, through lack of appetite or ignorance of food values, frequently suffer from lack of nourishment. An adult person of average size who is taking less than 1,800 calories daily is almost certain to be underfed, unless confined to bed.

Underfeeding is naturally accompanied by a loss in weight, the degree of which is a fairly accurate means of determining the measure of the food deficiency. The underfed individual also suffers, often to a very extreme degree, from a deficiency of vitamins. Famine is almost universally accompanied by scurvy and other deficiency disorders.

Modern studies of metabolism have shown that at least two or three ounces of carbohydrates (starch and sugar) must be taken daily to insure the proper utilization of other foodstuffs and to prevent acidosis. A normal dietary contains six or eight times this amount of carbohydrates.

The amount of protein eaten is rarely too small, although a dietary of exclusively vegetable origin may easily be deficient in complete proteins unless very carefully selected. The addition to a dietary of ordinary cereals or other vegetable foodstuffs of four to eight ounces of milk will insure an ample amount of complete proteins to meet the needs of the body.

### Deficiency Diet

Bills of fare notably lacking in vitamins are very commonly found in prisons, almshouses, hospitals for the insane and

feeble-minded, college dormitories and boarding houses, also in many private homes. A breakfast consisting of toast and coffee, bacon, griddle cakes and syrup, a very common menu, is almost altogether lacking not only in vitamins but in iron, lime and cellulose — elements highly essential to a complete dietary. Canned foods, particularly canned meats and vegetables, as well as dried fruits, are likely to be deficient in vitamins. Canned tomatoes and canned fruits are processed at a sufficiently low temperature largely to prevent the destruction of the vitamins, which are also preserved to a notable extent by fruit acids.

Reducing diets, such as are recommended for combating obesity, are almost always deficient in vitamins. Reduction in the amount of food eaten necessarily reduces the vitamins along with the other food constituents; and because of it, many persons on a special fat-reducing regimen have been greatly injured by the lack of these food essentials. A reducing diet should always comprise an abundance of foods rich in vitamins. The lack of this important food principle in the so-called light diet of hospital wards and the ordinary fever diets in common use has no doubt been responsible for delayed convalescence and various untoward symptoms and disappointing failures in thousands of cases in hospital and private medical practice.

### Irregular Meals

Irregularity in the times of eating is highly injurious for numerous reasons which become at once apparent when one recalls some of the simple facts relating to the physiology of gastric digestion. The stomach empties itself normally in about four hours. When an interval of five hours is allowed between meals, it has an hour in which to completely empty and disinfect itself, as well as to recruit the energies of its gland cells in

*(Continued on page 111)*



# History of the Remedial Use of Water in Modern Times\*

by Dr. John Harvey Kellogg

(Continued from March)

TWO ENGLISH physicians, Currie and Jackson, in the latter part of the eighteenth century, made a most intelligent and scientific study of the use of water in fevers, and with results which for a time commanded much attention from the profession in England. Currie discovered many important principles relating to hydrotherapy, some of which have not always been kept in mind by his successors in the use of water. For example, he says that the indications for the use of water in fevers, especially intermittent, are as follows:—

1. To diminish cold in cold stages.
2. To diminish heat in heat stages.
3. To diminish spasm of blood vessels.
4. To support the powers of life till the diseased associations die away from the ceasing of their causes.
5. To unload the bowels.

He also advised cold water drinking in large quantities, immersion instead of affusion in warm countries, where the water is seldom at a lower temperature than 70° F., and suggested that after immersion the

patient should be exposed to the air, so that the body might be cooled by evaporation. He recommended as a principle of the utmost importance for regulating the use of water, that it might be safely used "when there is no sense of chilliness present, when the heat of the surface is steadily above what is natural, and when there is no general or profuse perspiration." He observed that a cold pour could be used more safely than cold sponging, for the reason that it is "an energetic remedy," and "the system often accommodates itself to a cold which is general and stimulating, but shrinks from a cold which is slow and successive."

He also warned against fatigue occasioned by too much bathing, and recommended that after the bath the patient should be dried "hastily with towels," and recommended that when too severe effects had been obtained, causing too great depression, the extremities should be rubbed, and "a bladder of hot water applied to the stomach."

Currie also noted the evil effects of reaction in fever, and taught that short cold applications should not be made in cases of high fever, on account of their tendency to increase the

fever. He also taught that great mischief might result from the use of hot applications immediately after cold in such cases. He made use of the "wet blanket," or pack, in fevers, and observed that it relieved delirium. He also applied cold to the feet in hemorrhage of the lungs, and in a case of pulmonary hemorrhage suddenly plunged the patient up to the hips in cold water, a method previously successfully used by Dr. Darwin for relief of hemorrhage from the kidneys.

Even before the time of Currie, Crawford, in 1781, had recognized as one of the physiological effects of cold, its influence upon oxidation, observing that cold "increases the difference in color between arterial and venous blood, while heat lessens this difference in color."

For some reason not easily understood, the work of Currie and Jackson, the ablest of the early pioneers of a truly scientific method of inestimable value in febrile disorders, was lost sight of, and it was not until the attention of the whole civilized world was attracted by the fame of an uneducated and blundering, but still successful, cold-water empiric, that the profes-

\*From *Rational Hydrotherapy*, by Dr. John Harvey Kellogg, Modern Medicine Publishing Company, Battle Creek, Michigan.



sion began to give this agent the serious attention that was its due; for the modern popularity of water as a remedy must without doubt be largely credited to the enterprise and ingenuity of a Silesian peasant, Vincent Priessnitz, born in the little village of Gräfenburg, in Austrian Silesia, in 1790.

At a very early period, Dr. Benjamin Rush, of Philadelphia, used cold water with success in the treatment of rheumatism, gout, smallpox, measles, and many other maladies, including yellow fever. Currie declares that he found cold water "a most

agreeable and powerful remedy . . . applied by means of napkins to the head, and to be injected into the bowels by means of the clyster, also washing the face and hands, and sometimes the feet, with cold water." In 1794 Rush introduced the use of broken ice in a bladder applied to the head in fevers, and claimed great advantage from the employment of this remedy.

Drs. Bard and Hosack, of the New York Hospital, began the use of cold water in fevers about the year 1795, three or four years before Currie's book on

the medical uses of water appeared in America.

In 1799, Peter Edes, of Augusta, Me., published an interesting little work on the use of water, summarizing Currie's volume, and adding observations of his own.

Another American writer ingeniously suggested, in 1808, the employment of moistened clay as a cooling application for inflamed and congested parts. He used cold in the early stages of fever, but forbade its use in the latter stages.

*(To be continued)*

## Common Dietetic Errors

*(Continued from page 109)*

preparation for the work of digesting the next meal. This is essential for good digestion.

There is a close relation between the taking of food and the normal rhythmic activity of the colon. During the taking of a meal the food residues are moved forward in the colon four times as far as during the hour preceding the meal. When a meal is omitted, this physiologic stimulation of the colon is lacking, and the result may be the failure of the colon to evacuate its contents at the normal time, leading to distention of the colon and stasis or stagnation, which may become the starting point for chronic constipation. Thus regularity of meals is necessary in order to secure normal rhythmic action of the colon in the evacuation of food residues and other body wastes.

When the interval between meals is shortened, which is likely to occur when meals are taken at irregular hours, the result will be the reception of fresh food into the stomach before the digestion of the previous meal is completed. This deprives the stomach of rest and so prolongs the stay of the digesting foodstuffs in the stomach as to produce not only ex-

haustion of the organ but undue congestion of the gastric mucous membrane from too long contact with the gastric juice and digesting foodstuffs. The ultimate result will be gastric catarrh, slow digestion, together with other disorders affecting the later stages of digestion.

Late suppers are particularly injurious. They not only lead to impaired sleep, but take away the appetite for breakfast the next morning because the stomach is exhausted. Thus it is very common for the late diner to suffer from heaviness, headache and a feeling of malaise and inefficiency the next morning.

The heavy meal usually eaten at night by city dwellers is, in the writer's opinion, chiefly responsible for the obstinate insomnia so frequently encountered, especially among persons active in business or society.

### Hasty Eating

Insufficient mastication is a fault which has become almost universal because of the general use by civilized people of foods which by cooking have been rendered soft or semi-liquid, and hence receive little or no chewing to prepare them for swallowing.

All foods, whether solid or liquid, should be chewed, and it is important to take at each meal a sufficient amount of dry, hard food, not only to exercise the teeth but to stimulate the salivary glands to produce an adequate amount of saliva, which when thoroughly mixed with the food by mastication renders material aid in its digestion.

Burton says in his "Anatomy of Melancholy":

"Crato adviseth his patient to eat but twice a day, and that at his set meals . . . and to put seven hours' difference between dinner and supper. Which rule, if we did observe in our colleges, it would be much better for our healths, but custom, that tyrant, so prevails that, contrary to all good order and rules of physic, we scarce admit of five. Moreover, that which he doth eat must be well chewed, and not hastily gobbled, and by all means to eat no more than he can well digest."

Crato's advice to put seven hours between the meals may be advantageously followed by many sufferers from gastric disorders. Some stomachs need even more time for rest and clearance.—J. H. K.



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# FROM THE EDITOR'S PEN

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## The Emotional Stomach

MANY YEARS AGO, a circumstance occurred to call the writer's attention to the powerful influence of emotions upon the stomach. A lady patient under his care at the Battle Creek Sanitarium, while eating breakfast, was handed a letter from home which announced that her infant son was suffering from diphtheria. She at once arose from the table and hurried toward the door of the dining room, but before she had reached the exit, the half-eaten breakfast was on the dining room floor, suddenly ejected by the closure of the pylorus, which guards the outlet of the stomach, and the sudden reversion of the peristaltic waves which normally churn the food in the stomach as digestion proceeds, passing the liquid portions on into the intestine in spoonful portions.

Why should bad news have such a pronounced influence upon the stomach? The stomach is not a thinking organ. Mental unrest, of course, but why an upset stomach? This is a question no one could answer. Physiology could give no explanation of such instantaneous reaction on the part of the stomach to psychic impression.

Many years later, after the wonderful X-rays had been discovered, Dr. W. B. Cannon, professor of physiology at Harvard University, was conducting a series of observations on digestion, employing as a subject a cat which he had trained for the purpose.

The discovery had been made that by introducing into the stomach a small quantity of bismuth, which is opaque to the X-rays, an exact outline of the stomach could be thrown upon a fluorescent screen by the X-rays, and the stomach and its activities thus made visible.

On one occasion on which the doctor had given the cat an experimental meal, he was watching its stomach and observing the peristaltic waves which were passing over it at brief regular intervals, while the cat, well accustomed to the situation, was purring continually, when suddenly the experimenter pinched the tip of the cat's tail. The animal showed its resentment by arching its back and bristling its fur, and ceased to purr. The movements of the stomach also instantly ceased. For an entire hour, the stomach remained motionless. Not a drop of its contents passed through the pylorus.

After the animal had forgotten the insult offered it and resumed purring, peristaltic movements began again and digestion proceeded in normal fashion.

The incident first referred to taught a lesson which was never forgotten. Thereafter, care was taken to see that letters were not distributed at the breakfast table, and a small orchestra was installed to encourage a cheerful mental state by lively music during the principal meal.

In lectures to patients, Cannon's interesting experiment was frequently referred to, with a suggestion to the ladies that domestic difficulties should never be discussed at the table, and that care should be taken to keep everybody purring during the dining hour.

During many years of practice, numerous observations have been made respecting the influence of food and feeding upon mental states. Nervous dyspeptics often complain of depression, ennui, mental inertia, inability to concentrate the mind, or to do efficient mental work soon after eating, even drowsiness and disturbed circulation, manifested by coolness of the hands and the feet, flushing of the face, and a sense of fulness in the head, symp-

toms which might in part be accounted for from a lack of balance in the vasomotor control.

A very common observation has been the complaint by patients of suffering in some specific way after eating certain things, such as pickles, lemons, even tomatoes, buttermilk, sauerkraut, etc.

Occasionally, patients are met who have developed incompatibilities for so many different foods that they have gradually limited their bill of fare to two or three articles. Formerly, such persons were considered as neurotic, and their sensitiveness to certain foodstuffs as being purely psychic.

Many years ago, a French physician wrote a book entitled *L'Estomac et Le Cerveau*, in which many interesting relations in the brain and the stomach, and the functions of these two organs, were pointed out. The author of this interesting work believed the stomach to be controlled by the *solar plexus*, which he called the "abdominal brain." He found the cause of the sensitiveness to mental impressions in the intimate relation between the cerebral brain and the abdominal brain.

The average observations of X-ray specialists in their studies of the stomach in conditions of disease throw considerable light on these problems, but there has remained until recently a great unexplored field which the writer has long recognized, and has hoped might be explored, viz., an extensive study of the normal stomach under varying mental and physical conditions, especially after the taking of foods of various sorts. The October (1936) issue of the *Scientific Monthly* contains a most illuminating article entitled "The Stomach and Social Adjustment," in which an account is given of the findings of the X-ray studies of 800 college students.

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Doctor Todd, professor of anatomy in the Western Reserve University, who with his assistant, Miss Kuenzel, has conducted this research, gave barium meals to every freshman and concerning the observations made, says, "We were impressed by two features, namely, its size and its inactivity. Of course we did not realize that we were dealing with stomachs unused to being spied upon in this manner. We started the work at the beginning of the session in September, 1935. By February, we began to realize that these stomachs which in September were so large and sulky were now smaller, even though we gave exactly the same amount of food as before and more active than we had found them earlier in the session. By the following September these same stomachs had greatly stepped up their activity and they were very much smaller than we found them the previous February. But by this time we had a new set of stomachs to contrast with those we had been observing for a year, namely, the stomachs of the incoming freshmen. These stomachs behaved precisely like those of freshmen of the previous year. They were very large and very sluggish, but in the course of the session they also cheered up, grew smaller and became more active."

By the aid of a formula devised for the purpose, it was found possible to estimate the volume of the stomach contents by the measurements of the X-ray shadow. By this means it was found that when four ounces of milk were given to a student whose stomach was empty, within five minutes the stomach contained twelve ounces of fluid. If buttermilk was given instead of ordinary milk, the volume increased within five minutes to twenty or thirty ounces. It was noted, however, that the great increase in volume occurred only when the stomach was in a state of disquiet.

Further study showed that the increase was not due solely to

the rapid secretion of gastric juice but to closure of the pylorus, induced by the mental disquiet of the students. When examined again a few months later, it was found that the stomachs were much smaller. It was also found that the enlargement did not occur except when there was mental unrest or depression from some cause.

The size of the stomach's shadow was found to be dependent upon the relation between the amount of gastric juice secreted and the discharge of the gastric contents through the pylorus. Depressing emotional states lessened the peristaltic activity of the stomach and caused prolonged closure of the outlet.

Says the author, "Our first lesson in the study of gastric behavior then is its susceptibility to disturbance of emotional origin. That disturbance is elicited by mental stress of any kind, by incipient illness, by hurry or by physical fatigue. The unwisdom of eating much before hurrying for a train, entering an examination, attending a board meeting where trouble is brewing, when feeling ill or physically exhausted, is explained in objective terms. The pylorus closes. Contents are banked up in the stomach, the organ remains awash and the sensation of heaviness, distention and acid risings result from impaired motor function.

"Some stomachs are much more prone than others to this disturbance of function, the chief site of which is to be found in the pylorus."

But the observations made show clearly that mental influence alone did not account for the gastric disturbance observed. It was found that certain foods "act as a trigger mechanism, inducing closure of the pylorus in a sensitive stomach. If the reaction is very vigorous, vomiting will ensue as Nature's method of relief. If, however, the response is less pronounced, the victim continues for a considerable time in a state of gastric discomfort

until the pylorus opens of itself or is tricked into opening by the administration of soda or some other medicine." (A large spoonful of Lacto-Dextrin in hot water is the best means of opening the pylorus.)

Persons whose stomachs are sensitive to certain foodstuffs, such as buttermilk or other acid foods, especially liquids, observe a marked distinction and an unpleasant sense of fullness soon after eating, often when the amount of food taken is small, especially when cold liquids are taken and hastily swallowed, but, as Doctor Todd very properly adds, "A victim of this disturbed gastric function experiences much more than mere distention. He may have pain and severe tenderness in the upper abdomen. Often he shows drowsiness, mental inefficiency and a tendency to abstraction or daydreams. His temper may wear thin; he becomes irritable or he may have a prolonged bout of sneezing and congestion in the head. Curiously enough, the pylorus may be opened by a good sneezing fit."

Of other interesting observations made by Doctor Todd, he says, "Some people can not drink milk without disturbing their digestion. To others buttermilk is nauseating. There are those who dare not touch an egg, who get a rash from strawberries or break out in hives from what they call 'overheating' foods. Just what goes on in the stomach when a food to which one is sensitive is swallowed, we do not know. But some mechanism is set in action which, as part of its manifestation, closes the pylorus firmly, just as emotion does. There is no doubt but the abdominal distention and discomfort which follow, in some people, the eating of certain foods, results from closure of the pylorus and banking up of contents, which are greatly increased by the flow of gastric juice.

"Of course this gastric juice really is elaborated from the blood, and fluid secreted in the stomach is actually withdrawn



from the blood. Were there not a return flow to the blood stream by way of absorption from the bowel, we should quickly become as dry as a mummy. But of this internal water circulation scarcely anything is yet known. By means of the X-ray we can watch the banking up of fluid in the stomach and its release when once again the pylorus is opened to permit its passage.

"So now we come to the question of what makes the stomach contents pass into the duodenum. It is a rather interesting fact that, whereas saliva flows when we chew solid food but not when liquids are taken, gastric juice can be seen to pour into the stomach far more freely when liquid nourishment is swallowed. The device is obviously a flushing of the fluid through the stomach by the outpouring gastric juice. When solid food is swallowed, peristalsis does act to some extent in passing it onwards, though the relatively small amount of gastric juice then secreted plays its part as a flushing agent. Whatever the food swallowed, liquid or solid, provided there is no emotional barrier and the stomach is not 'sensitive' to the particular food swallowed, passage into the duodenum can be observed to commence within two minutes."

In considering the differences of the length of time various foods are retained in the stomach, the observations of Cannon and others must not be forgotten. It is known, for example, that farinaceous, or starchy substances, if well chewed or taken in a liquid state, leave the stomach very quickly, the evident reason being that they are digested by the pancreatic rather than the gastric juice, and hence there is no reason for their long delay in the stomach. Such carbohydrates as sugar and dextrin often leave the stomach completely within a few moments after being swallowed. Careful study of more than 60,000 test meals in the laboratory of the Battle Creek Sanitarium, showed that on the average, starchy foodstuffs are turned

out of the stomach into the duodenum when half the starch present has been dextrinized, or converted into malt sugar.

Proteins, being acted upon by the gastric juice, require a longer stay in the stomach, the chief purpose of the gastric juice seeming to be the complete liquefaction of the foodstuffs, so as to permit intimate contact of the intestinal digestive fluids with each particle of the individual foods requiring their specific activity.

### The Right Way and the Wrong Way

THE DISCOVERY at Johns Hopkins University of a new drug which appears to be of service in combating infections by streptococcus, one of the most to be dreaded bacterial enemies of human life, has been announced by *The New York Times* and other prominent journals. A German, Professor G. Domagk, was the real discoverer of this remedy, which has recently become known in this country, and is pronounced by some "to be the outstanding therapeutic achievement of the last decade."

The new drug is a derivative of coal tar dyes. It is not claimed that it destroys germs. Apparently, what it does is simply to weaken the bacteria so that they may be destroyed by the white cells of the blood, thus enabling the body to establish immunity.

If the remedy is administered in proper doses and before the fighting power of the body has been destroyed by the invading bacteria, success is usually attained in cases which would otherwise prove fatal. Of nineteen cases treated at the Baltimore General Hospital, seventeen cures were reported.

The diseased conditions treated included erysipelas, infectious abortion, scarlet fever, acute tonsillitis caused by streptococcus infection, chronic cystitis, chronic impetigo (an inflammatory skin disease), infections of the eye following in-

juries, inflammation of the middle ear, and mastoid disease with septicemia.

The use of artificial means of weakening the germ enemy in case of attack by a virulent infection, is of course rational and justifiable, nevertheless, a better means is to maintain high resistance of the body by biologic, or wholesome, living and especially taking care to make large use of vitamin A, which promotes high resistance to infections of all sorts by reinforcing the internal defenses of the body. Vitamin A is found in abundance in greenstuffs of all sorts, particularly parsley, a single bunch of which contains 100,000 units. It may be used either raw, or cooked as greens, or as an addition to other greens, in soups, etc.

The parsley used as a garnish for a dish often has far greater nutritive value than the dish itself. Parsley should be eaten at every meal.

### The Physiologic Method of Treating Disease

THE PHYSIOLOGIC method of treating the sick is just as different from the artificial method as darkness is different from light or light from darkness. The ancient methods regarded disease as an entity, an evil demon that had got possession of a man and must be gotten out. Indeed, at the present time, if we go into Tartary and Thibet, we will find native doctors practicing medicine in the same way that was in vogue three or four thousand years ago. Among civilized people, methods not very different are still used. A man has dyspepsia, for example; he thinks of dyspepsia as a hydra-headed monster that has taken possession of his stomach, has him in its clutches, and is torturing him. And he goes to the doctor to get him to give him something that will kill the monster.

The whole philosophy is wrong. Pain is not an enemy;



pain is a friend. Disease is not always a destructive process; it is often a healing process, a curative, restorative process.

There is a difference between disease and the cause of disease. If we remove the cause of disease, then it ceases; because disease is an effort of Nature to restore the man to health. The cause of a malady is the offender that we should be continually hunting for and fighting against. If you have pain, find out the cause and remove it. Drugs which stop pain by benumbing the nerves are simply palliative, not curative.

## Signs of Heart Disease

**T**HE INCREASING prevalence in disease of the heart renders important the early recognition of the disease. More can then be done than later to arrest its progress.

One of the earliest symptoms of failure of the heart due to myocarditis, or myocardosis, the newer and better name, for this condition, is shortness of breath on making some ordinary exertion, such as climbing stairs or walking up an incline, to which one has been accustomed without suffering any inconvenience.

Palpitation of the heart occurring after a meal, or extra exertion, and a sensation of heaviness over the upper part of the chest, especially on the left side, indicate inability of the heart to supply an adequate amount of blood to the muscles during exercise, or to the stomach and other digestive organs, after the taking of a meal.

Giddiness and fainting, especially when bending forward suddenly, are other symptoms indicating weakness of the heart due to loss of its normal reserve.

Mental symptoms also occur in many cases, such as impairment of memory, drowsiness, lack of mental clearness, inability to concentrate, or to reach a conclusion. The patient claims that he is "unable to make up his mind." The reason doubt-

less is the failure of memory, which makes it difficult or impossible to bring together at a given instant all the varied data necessary for formulating a conclusion. The brain requires more blood than any other part of the body; the liver, spleen, heart, and muscles, require a much larger volume.

As soon as symptoms of heart disease are recognized, definite steps should be taken at once to arrest the further development of the disease and to repair so far as possible the damage that has been done. This may be accomplished effectively only by removal of the cause and the application of real curative measures. In some cases, the primary cause of the heart failure is infection, such as often occurs in connection with an attack of acute rheumatism or some other infectious disease, as typhoid, scarlet fever, smallpox.

In such cases, palliation of the results of the damage done is all that can be expected. In the majority of cases, however, the heart disorder is the result of erroneous habits which may be corrected. Most common and potent for mischief are the tobacco habit, the use of alcohol beverages, and overeating. Sedentary habits, bad posture in sitting, or while pursuing one's vocation, are other causes which need to be corrected.

Coffee must be discarded. A low protein, or meatless diet, should be scrupulously adhered to. Fresh air, sun bathing, avoidance of severe strain and violent exercise, especially such as lead to holding the breath, should be carefully avoided, and the heart muscle should be strengthened by systematic and carefully graduated exercises, daily increased in vigor, but always carefully controlled so as to avoid very pronounced breathlessness.

The influence of exercise upon the pulse rate and breathing should be carefully watched. In general, the heart after exercise, should return to its normal rate within five minutes. When a longer time is required, it is evident that the heart has

lost its normal reserve. A period of rest, followed by carefully graduated exercises, is the only means by which the heart reserve can be in a measure restored.

## Increase of Life Expectation in England and Wales

**A**N excellent illustration of the brilliant results which may be expected to result from a thoroughgoing application of modern sanitary measures, is a report of life expectation in England recently made by Dr. James Trenton, at the South African Health Congress.

Sixty years ago (1875), the average expectation of life at birth in England was for males, forty-one years; females, forty-four years. At the present time, the life expectation in England is for males, fifty-seven years, and for females sixty-one years, an increase in sixty years of sixteen years for males and seventeen for females. This is an increase in average longevity of thirty-nine per cent for males; 38.6 per cent for females.

## Tobacco Poisons the Liver

**O**NE OF THE most important functions of the liver is regulation of the sugar function. It stores in the form of glycogen the carbohydrates taken in the form of sugar, starch and dextrin and then doles the sugar out to the body in small quantities momentarily added to the blood in just sufficient quantities to supply the fuel needs of the body, thus maintaining the blood sugar at a fairly uniform level, which rises after meals and diminishes between meals.

Smoking increases the amount of the blood sugar by crippling the liver. This was shown experimentally in 1901 by H. Stern (*Medical Record*), who found sugar in the urine of cigarette smokers.



# A DIGEST OF HEALTH PROGRESS

## The Fight against Pneumonia

**I**N SPITE OF ALL the efforts of medical science, pneumonia still remains a very deadly disease. Massachusetts and New York have organized special campaigns against it. Every year in many regions there now occurs a greater loss of life from acute pulmonary infections than ever resulted from typhoid fever at its worst. Dr. Rufus Cole, of the Rockefeller Institute Hospital, New York, deals with this subject in a paper which appears in the *American Journal of Public Health*.

One difficulty has been, he says, that pneumonia has been considered one disease when it is really a group of them, each with a specific cause. Pneumococcus is an organism widely distributed, present in the mouths of the healthy. Only certain varieties are dangerous. It is now known that pneumonia is rarely a primary disease. In the World War it was usually associated with measles or influenza. Prompt diagnosis is important. At the Rockefeller Hospital the mortality from Type 1 was 4.8 per cent when treatment was given during the first three days, rising to 19.5 per cent when the serum was delayed until after the fifth day.

Dr. Cole declares that most patients "threatened" with pneumonia have it. Where the patient has a chill, fever over 102 degrees, cough, sharp pain in the chest, rapid breathing and above all when the sputum is blood tinged, he in a great majority of the cases has pneumonia. The sputum should be examined at the first moment possible and the result telephoned to the doctor at once. If the disease is Type 1 the serum should be administered immediately. If not thus treated, one patient in four dies.

Equal success has not been secured in the treatment of other types than Type 1. Fortunately, most cases are of this type and if the instructions for carrying out the method of treating Type 1, given by the Rockefeller Institute, are faithfully carried out, many thousands of lives may be saved.

Pneumonia is especially fatal in elderly persons and infants. It is undoubtedly infectious, and aged persons and infants should be carefully guarded against contact with persons suffering from this disease.

## Six Small Meals a Day to Reduce Weight

**M**ANY METHODS of combating obesity have been advocated by physicians. Some of these are reviewed by Dr. Oscar W. Bethea in the *International Medical Digest*. He accepts as basic that diet rather than drugs should be the main reliance. The food should be varied and palatable and contain sufficient vitamins, iron, calcium and other essentials. He is particularly impressed with the system of small feedings urged by Aub. This is based on the following reasoning:

When the stomach is empty, hunger is felt; when the stomach is filled, hunger disappears. The size of a person's stomach depends very largely on the use that has been made of it. If the organ is never distended, it will reduce in size to where a comparatively small amount will fill it; the hunger reflex is abolished and the patient is comfortable. Hence Aub gives six meager feedings a day, being careful that the total amount of calories is less than the expenditure of the person. In a remarkably short time the hunger reflex which formerly demanded a large meal is equally content with a small one. Bulky foods are given sparingly and little liquid is taken at the table.

Three or four feedings daily of bananas and skimmed milk have been found to act very favorably in reducing weight.

A reduction of salt intake is recommended by many, potassium chlorid being substituted for it. Dr. Bethea thinks it well to change the regimen at times when it has become monotonous or distasteful, by putting in a few banana and milk days, or giving nothing but six oranges for one day. Exercise is of course beneficial but must be regulated with great caution. If possible it should be taken in the form of sport.

Thyroid and pituitary extracts should be used only under the direction of a physician.

## The Menace of Rheumatic Heart Disease

**R**HEUMATIC heart disease accounts for from fifteen to forty per cent of clinical heart disease in this country. It is the cause of practically all valvular heart disease in persons under thirty years of age. In the World War draft twenty-six men in each thousand were rejected for heart disease, mostly of this type. It is estimated there are 840,000 cases of rheumatic heart disease in the United States.

Dr. O. F. Hedley considers the public health features of this malady in *Public Health Reports*, issued by the Federal government. Rheumatic fever, he writes, would be far less important if it were not for the heart disease which is its chief manifestation. A very large variety of symptoms may be due to the fever. There is usually a smoldering, low-grade infection, with periods of activity often following colds or other infections. In adults, the joint involvements are usually more prominent than in children, but the heart effect is not so severe. The greatest frequency is between the ages of seven and ten.



The malady is very rare in the tropics and most common in the north, especially in the industrial population of large cities.

Persons with colds or active rheumatic infections should avoid close relations with other persons, especially young children. Diseased tonsils should be thoroughly removed as soon as it is safely possible. Among 48,000 school children, thirty-four per cent fewer had histories of rheumatic infections when tonsillectomies had been performed. Mortality was reduced about one-half among children whose tonsils had been taken out before the onset of rheumatic infection. Active cases should be excluded from school.

Since the disease is most common in the lower economic groups, especially in large cities, the best preventives are probably better housing, proper food and clothing and adequate medical care.

### Salt-Free Diet in Skin Diseases

TWO SCIENTISTS (*British Medical Journal*) have been experimenting at the University Dermatological Hospital in Hamburg with a salt-free diet in skin troubles of nervous origin. They found at once that the daily addition of fifteen to twenty grams of salt (one-half to two-thirds of an ounce) to the food provoked an aggravation of this disease, usually on the first day, but in some cases not until the second to the fifth day. The new symptom consisted as a rule of violent itching, so severe in some instances as to be so unendurable that it was necessary to discontinue the use of the added salt.

Dryness of the skin was relieved by the application of lanolin and vaselin. As a rule, the curative effect of the restricted diet was not demonstrable in less than four to six weeks. But the disease returned when salt was again added to the food. Such relapses could be more or less avoided by eliminating such foods as were

found by experience to be most injurious.

Of sixty-nine patients suffering from eczema, fifty-one were practically cured by the salt-free diet, sixteen were much improved, one slightly improved. One was not helped.

### Foot Facts Worth Considering

AN ESTIMATE that seven persons out of ten in civilized countries suffer from foot troubles is made by Dr. Melvin L. Hole (*Medical Record*). He says further that fifty or more diseases above the hips are traceable to foot imbalance due to collapse. Great economic loss and untold misery are caused by the feet. The situation is perhaps getting worse instead of better, although two salutary influences are discernible. The public is demanding more expert fitting of shoes and is realizing the danger of using, without a competent doctor's advice, bandaging, treatments, and the various gadgets and appliances flooding the market.

Of persons applying to an orthopedic institute, more than one half were found to be wearing shoes that were too short. A majority had pronation, which is a form of flat-footedness. Nineteen different forms of foot troubles are listed among the patients. Very few were congenital and all others were caused or aggravated by ill-fitted shoes, or by shoes of weak or wrong construction. In every state a blacksmith must have a license before he can shoe a horse. Should not shoe salesmen have some scientific training before they are allowed to prescribe footwear for the multitude?

In *California and Western Medicine*, Dr. Edwin F. Patton says there is no such thing as ideal foot conformation. Feet differ as do noses. Many which do not seem quite normal meet all requirements of use satisfactorily. Babies do not need stiff shoes to help them to learn to walk. If shoes are worn, they should be regarded as merely

gloves for the feet, to protect against cold and injury. Pronated feet and relaxed arches do not necessarily need correction. Pronation cannot be corrected by tilting up the inner border of the shoe-heels.

Another fallacy is that flat-foot can be corrected by wearing commercial orthopedic shoes.

If a foot really needs an arch support, nothing will suffice short of a made-to-measure semi-rigid plate fitted inside of shoes which will hold the foot in place on the plate. Not all cases of flat-foot will be corrected by arch plates and suitable shoes. Some are due to malnutrition or other disease. There are some congenital flat-feet which nothing short of an operation will influence. Exercise for ten or fifteen minutes a day can accomplish little for flat-foot. A number of Los Angeles school children did not respond to corrective physical education for flat-foot. It was found that they were undernourished and chronically tired.

In discussing the paper, Dr. Clifford Sweet declared that all babies are bow-legged and the legs straighten with walking. All children become knock-kneed and have pronated feet, reaching the height of this stage in normal development at three years of age. At the age of five or at the latest, seven, the knock-knee will have disappeared and the pronation will have largely righted itself.

The best of all remedies for flat-foot is to wear Chinese slippers. The use of the slippers should be begun as soon as the first evidence of flattening of the transverse arch of the foot makes its appearance.

The Chinese slipper can not be kept on the foot without curling the toes under. The effect of this is to contract the muscles of the bottom of the foot, and thus to restore, strengthen and maintain the normal arches of the foot.

Flat-footed children should wear the Chinese slippers constantly instead of going barefoot. This will insure normal development. Older persons



who do not care to appear in public wearing Chinese slippers may wear them at home, wearing sandals or broad, low-heeled shoes at other times. Chinese or Japanese slippers are obtainable at most ten cent stores.

### Poisoned Foods from Dirty Bakeries

**O**WING TO finances, routine inspection of food establishments was abandoned in Birmingham, Ala., for three years. In March, 1936, 122 persons were poisoned by eating cream puffs. They had severe abdominal cramps, vomiting, diarrhea, headache and other symptoms. All recovered. The bakery from which the cream puffs came was found to be unspeakably filthy and so were other establishments which were then inspected. The poisoning was due to a pus-forming germ known as *staphylococci*, as Dr. George A. Denison, of the Board of Health of Birmingham, reports in the *American Journal of Public Health*.

He lists seventeen other outbreaks from the same agency. In ten cases the incriminated foods were cake or custard-filled or cream-filled bakery goods; raw milk in four, while cheese, chicken gravy, chicken salad and tongue sandwiches were responsible in one instance each. There have been other outbreaks in which these germs were thought to be the cause, but scientific proof was lacking.

Dr. Denison says there is much food poisoning which is not reported; that there is every reason to believe that during the summer months such cases are of daily occurrence.

Well-informed housewives always prefer to serve their families with food products prepared in their own kitchens. In cities where there is no well-organized inspection of bakeries, restaurants and other places where food is purveyed, there is always more or less danger of acute infections or other injuries from bakery products.

### Wild Animals Carry Tularemia Germs

**M**ORE THAN twenty wild creatures, especially rabbits and hares, are carriers of tularemia. Man becomes infected by contact of his bare hands with the raw flesh and blood of these animals or by bites of blood-sucking ticks and flies which have fed on animals infected with the disease. The name comes from Tulare County, California, where the disease was first discovered in 1910 by Dr. George W. McCoy, of the United States Public Health Service. Dr. Edward Francis, medical director of the United States Public Health Service, who early investigated the malady and gave it its name, says in *Public Health Reports*, cases have been recognized in all the states except Vermont and Connecticut, and in various foreign countries. Market men, hunters, housewives and others who dress rabbits with bare hands may become infected. Usually the germs enter through some wound or break in the skin but they can penetrate the normal skin. Cases are reported due to contact with sheep, the tree squirrel, opossum, sage hen, ground hog, coyote, red fox, bull snake, quail, muskrat, hog, skunk, field mouse, cat, dog and white rat. In some instances the infection was due to bites from animals.

Forty-one laboratory workers in various countries have been infected with tularemia while performing autopsies on animals or from handling ticks. Eating insufficiently cooked wild-rabbit meat caused twenty cases in five families, of whom twelve died. In Russia, forty-three persons were infected by drinking water from a brook contaminated probably by water rats.

In twelve years, 6,174 cases were medically reported in the United States, with 299 deaths. About three days after exposure, illness begins with headache, chilliness, vomiting, aching pains all over the body and fever. The patient thinks he has

influenza and goes to bed. The sore on the hand develops into an ulcer. The glands at the elbow and armpit become enlarged, tender and painful. There is sweating, loss of weight and debility. Illness lasts about three weeks, if the patient survives, and is followed by a slow convalescence of two or three months. Most patients recover without any bad after effects, but about five per cent die, especially if the case is complicated with pneumonia. There is never a second attack.

### Tobacco Manufacturers' Research Demonstrates Injury from Tobacco Using

**T**WO GROUPS of manufacturers of cigarets are having a dispute as to whether glycerin or diethylene glycol is more injurious. These substances are added to tobacco to prevent its drying out too rapidly. An investigation of the subject was held by Dr. Howard C. Ballenger and V. H. Johnson, of the Northwestern Medical School. They tested one hundred persons for some weeks with various kinds of "coffin nails." Their conclusion was that neither ingredient was harmful. But incidentally they presented ample evidence of the injury done by smoking to the nose, throat and conjunctiva of the eye. (*Archives of Otolaryngology*.)

These subjects had smoked an average of seven and one half years each. They were young, the average age being about twenty-six years, and in good enough health to carry on their vocations. They smoked about twenty cigarets each per day. At the outset sixty-six reported various symptoms which they attributed to smoking. A dry or irritated throat was the most frequent complaint. Thirty-nine had coughing, especially in the morning. Fifteen told of a husky or hoarse voice.



Physical examination before the tests began showed that forty-four subjects had the nose congested, fifty-two the throat red or congested, and thirty-seven the conjunctiva red or congested. It should be remembered that all were habitual smokers. These figures rose and fell in the course of the period. At one time more than one half on the average had trouble in the nose, throat and eye. It is a remarkable fact that eighty-five of the hundred were medical students, a few being doctors. Small wonder that smoking is so common among the uninformed laity.

Dr. Frederick B. Flynn made an investigation which incidentally throws light on the harmfulness of tobacco. At the beginning of the experiment 73.7 per cent of the persons showed a congested condition of the pharynx and larynx, 66.2 per cent had coughs, 7 per cent had an irritation of the tongue and twenty per cent gave a history of palpitation of the heart.

### The Intestinal Flora May Be Changed by Fruits

APPLES, bananas and raisins were found to have a favorable effect in changing the intestinal flora, in experiments conducted by Drs. Louis Weinstein and James E. Weiss, of Yale University. No such result was obtained with prunes, however, or with kaolin or charcoal. The subjects were white rats. It is quite significant that the protective acidophilus was not entirely driven out of the intestines when the rats were placed on a diet of chopped meat.

Animals receiving four grams of banana powder daily were found to have fifty to seventy per cent of acidophilus organisms in the stool, with little evidence of putrefaction. When six grams (one fourth of an ounce) were given, the protective acid-forming organism, acidophilus, increased to eighty

and even ninety-five per cent. Similar results were obtained with apple powder and with raisins. Control animals fed on meat alone showed no protective organisms at all. Feces of the rats fed on apples or bananas were more bulky and softer in consistency than those of the controls and wholly free from offensive odor (*Journal of Infectious Diseases*).

The starch and dextrin of the banana would account in part for the growth of the lactobacilli. This fruit and the apples and raisins contain relatively large amounts of minerals, and it is to be remembered that Valley and Eppright have shown that the mineral content of the diet plays an important rôle in the ability of the carbohydrates to induce a highly aciduric flora.

### Sale of Spoiled Hamburger

MANY COMPLAINTS were heard in Portland, Oregon, that much ground fresh meat, especially hamburger, was off flavor, if not actually spoiled. Walter C. Elford, of the Board of Health of that city, tells in the *American Journal of Public Health* that one specimen bought contained 85,000,000 bacteria per gram. The seller was convicted and fined \$50. But the prosecution involved considerable expense, as two experts had to be brought from a distance. A method was then devised by which the regular staff could count the bacteria.

The city ordinance permits 10,000,000 bacteria per gram. A dozen establishments were found to be selling meat which had a higher count than this. Some samples contained 32,000,000 per gram. The merchants were all warned and thereafter kept within the law. This experience in so large a city as Portland indicates that spoiled meat is habitually sold unless the inspectors of the Board of Health keep a sharp watch. There are of course many communities which cannot afford to keep a continual lookout on the butcher shops. Official inspec-

tion is absent in numerous places and occasional in others, so the amount of decaying meat offered for sale throughout the country must be very large.

### Emotion and Digestive Upsets

PURELY MENTAL causes may bring on a variety of digestive disturbances. Sometimes these may resemble such organic diseases as peptic ulcer, gallbladder disease, appendicitis and colitis, although the symptoms are vague, the pain is less acute and lacking the radiation commonly seen in organic troubles. Lack of appetite and vomiting are frequently encountered, says Dr. Ernest F. Wahl, as quoted in the *Journal of the American Dietetic Association*.

Some patients will declare they are eating heartily, yet really are on a starvation diet. Others will become ravenously hungry an hour after a big meal. Heartburn is common. Belching and swallowing of air occur almost entirely in women. The thin, nervous individual may have mild abdominal cramps.

Anger, mental or physical fatigue or enforced idleness after a busy career may affect the digestive apparatus. Sometimes a queer appetite is developed, or the food may pass very slowly through the intestine, or it may move so rapidly that little absorption occurs.

### Action of Alcohol in the Body

ALCOHOL IS NOT burned in the body and hence cannot be considered a food. Dr. Thorne M. Carpenter, as told in *Science*, described at the Carnegie Institution of Washington his experiments which indicate that alcohol is converted into some other substance in the body. The largest amount of it remains in the blood, and hence it is chiefly found in the brain, kidneys, spleen, heart, lungs and liver, which receive the most blood.



Insulin and other means may be employed to hasten the disappearance of the poison from the body. Muscular work does not aid materially in getting rid of it, nor does vaporization through the breath. Drinking water is effective if large quantities are taken; at least one glassful an hour should be swallowed.

Alcohol is absorbed very rapidly and distributed through the body quickly. It can be identified in the body as long as any of it is left. It cannot be stored in any organ.

## The Non-Infectious Cold

**C**OLDS ARE often infectious in character, but not invariably. Rhinitis is an inflammation of the mucous membrane of the nose. It may or may not be infectious in the beginning, but may later become so. When not bacterial, it is called vasomotor rhinitis, being marked by an abnormal constriction or dilation of the vessels of the nasal mucosa.

Dr. C. Stewart Nash (*New York State Journal of Medicine*) points out that rhinitis is fundamentally a disease of civilization. Animals in their forest haunts seldom have nasal catarrh but domestic ones do have it. Natives of Rarotonga and Tahiti had no head colds when the first white men visited them. They have been involved in the complications of rhinitis and are racially doomed to extinction. Stefansson lived with the Arctic Eskimo nine years without encountering colds.

Vasomotor rhinitis, says Dr. Nash, is due to the inhaling or eating of some substance which is irritating to the membranes of the nose. Excessive consumers of candy often have it. One such, a girl of nine years, was treated for six and a half years for sinusitis without material benefit. She was cured when deprived of all candy. Irish potatoes, white bread, macaroni or citrus fruits in overabundance will occasionally result in

rhinitis. Even nasal catarrhs are often traceable to these causes.

It was noted on an experimental farm that horses, cows, pigs, sheep and dogs had colds in the nose when fed too much starch and sugar. Relief came from giving liberal supplies of organic and inorganic minerals.

Civilized man eats polished rice, branless wheat, refined sugar and highly specialized cereals. Milk is produced for its quantity of fat content and not for its iodine, phosphorus and other minerals; then in addition it is pasteurized. Pastries, confections and starches complicate the menu. Vegetables are raised for size and appearance and not their mineral content. Seaweeds, Nature's own formula, are infrequent items of diet.

Pollens, common inhalant irritants and common food susceptibilities are readily detected and may be treated by excluding the cause or desensitization.

## Abundance of Sunshine Needed to Insure Good Teeth

**P**ROPER development of teeth is aided by sunshine. This is the conclusion drawn by Lieutenant Commander R. A. Ferguson, of the Dental Corps of the United States Navy, from observations on 4,745 recruits of the army and navy, of the average age of twenty years. He found the dental health better among those from the south than from the north. The boys from the country were superior to those from cities.

Of 2,185 rural recruits seventeen per cent had perfect mouths, while among 2,560 urban recruits the percentage was only 1.1. The difference is attributed to the outdoor life in the country and to better diet of protective foods, such as eggs, milk, butter, fruits and vegetables. The city dwellers from the south were slightly ahead of those from the north. Of the

southern farmer boys nineteen per cent had perfect mouths, compared with sixteen per cent of rural recruits from the Central States, 5.6 per cent from the Middle Atlantic States, and 4.5 per cent from New England.

Lieutenant Commander Ferguson believes that the lessened ultra-violet rays in cities, due to smoke, dust and indoor occupations, cause the inferiority in teeth. His findings were communicated to the *Journal of the American Dental Association*.

## Vaccines Have Their Limits

**P**REVENTIVE inoculations have had a great effectiveness in certain diseases and have held out hopes of reducing the mortality from others very much. But there are decided limitations to their usefulness. Professor Dwight O'Hara, of the Tufts College Medical School, writes on this general subject in the *New England Journal of Medicine*. The prevention of smallpox and diphtheria is the birthright of every child, he declares. This can be simplified and made more certain by treatment between the ages of six and twelve months.

The individual can receive only an indefinite or equivocal resistance to typhoid and scarlet fevers and to respiratory infections. Compulsory vaccination against typhoid began in the United States Navy in 1911 and at once there was a sharp drop in the death rate. But public sanitation and the proper handling of foods have been the chief causes of the decline of this disease.

While there is no evidence that the incidence of an initial cold can be influenced by vaccines, it is quite probable that they can produce a certain amount of resistance to some of the secondary invaders. But every cold should be treated as potential pneumonia. This is the best way to prevent this more serious affliction.



# Healthful Recipes

## CREAM OF PEANUT SOUP

3 cups milk  
 $\frac{3}{4}$  cup cream  
 $\frac{1}{4}$  cup peanut butter  
 1 small onion  
 1 very small bay leaf  
 $\frac{1}{4}$  cup water

Heat the milk in a double boiler. Add the onion and bay leaf. Steep in the hot milk about fifteen minutes. Stir the water into the peanut butter, making a smooth paste. Add to the hot milk after removing the onion and bay leaf. Add the cream and salt to taste.

## NOODLES AND SPINACH LOAF

3 cups cooked noodles  
 1 tbsp. butter  
 2 cups cooked spinach  
 1 tsp. Savita

Boil the spinach in salt water and chop. Brown the butter and stir in the Savita. Add the spinach and cook a few minutes to blend the flavors. Place a layer of noodles in the bottom of a buttered baking dish. Add the spinach, then a layer of noodles. Pour Cream Cheese Sauce over the top. Bake in a moderate oven about fifteen minutes.

## CREAM CHEESE SAUCE

1 tbsp. flour  
 1 tbsp. butter  
 $1\frac{1}{2}$  cups milk  
 2 tbsps. grated cheese  
 Salt to taste

Melt the butter; stir in the flour and brown slightly. Add the milk slowly and stir until smooth. Add the grated cheese.

## PEA SOUFFLÉ

4 tbsps. flour  
 4 tbsps. fat  
 1 tsp. milk  
 3 eggs  
 1 cup mashed cooked peas  
 1 tsp. salt  
 1 tsp. grated onion

Make a white sauce of the milk, flour and fat. Mash the cooked peas to a pulp. Beat the whites and yolks of eggs separately. Mix the vegetable pulp, seasonings, sauce and well-beaten yolks. Fold in the stiffly beaten whites, put into a

greased baking dish, and bake in a slow oven until firm. Lima beans may be used instead of peas if desired.

## CALCUTTA RICE

2 cups rice  
 1 green pepper  
 and 1 small onion if desired  
 2 cups tomatoes  
 $\frac{1}{2}$  pound cottage cheese  
 1 tsp. salt

Boil the rice. Mix it with the tomatoes, cheese and seasonings, and pour into a baking dish. Bake half an hour. If the pepper or onion is used, cut up and boil with the rice.

## SWEET POTATOES WITH APPLES

4 medium-sized sweet potatoes  
 3 large apples  
 2 tbsps. butter  
 2 tbsps. sugar  
 1 cup water

Wash, boil, peel and slice the sweet potatoes. Pare, quarter and core the apples. Arrange alternately in layers. Sprinkle with sugar, dot with butter and add the water. Bake in a moderate oven for 45 minutes.

## FRENCH APPLE TOAST

$\frac{1}{2}$  cup milk  
 1 egg  
 4 slices bread  
 $\frac{1}{2}$  cup apple sauce

Beat the egg slightly and add the milk. Into this dip the bread for a moment, one slice at a time, and place on buttered tins in a hot oven. Bake to a golden brown. Remove from the oven and place on each slice a spoonful of apple sauce.

## ASPARAGUS AND POTATO STEW

2 cups sliced boiled potatoes  
 2 cups asparagus cut into inch lengths  
 1 tbsp. flour  
 1 tbsp. butter  
 1 cup rich milk  
 $\frac{1}{2}$  cup asparagus water  
 Cream Sauce

Cook fresh asparagus, or use canned. Place a layer of sliced potatoes in a buttered baking dish. Add the asparagus and cover with a layer of sliced po-

tatoes. Cover with Cream Sauce. Put a cover on the dish and bake about twenty minutes in a moderate oven.

## CREAM SAUCE

Melt the butter. Stir in the flour; add the milk and asparagus water. Salt to taste.

## CARROT AND CABBAGE SALAD

1 cup grated carrots  
 1 cup shredded cabbage  
 1 cup shredded spinach  
 Mayonnaise

Select young tender carrots. Scrape and grate. Shred tender cabbage. Wash fresh spinach free from grit and let stand in cold water until crisp, then shred. Mix all together with mayonnaise, using a fork to make it light and fluffy.

## MAPLE CUSTARD

4 cups milk  
 4 eggs  
 $\frac{1}{2}$  cup maple syrup  
 $\frac{1}{2}$  tsp. salt

Scald the milk. Add the syrup and salt and pour the mixture slowly over the beaten eggs. Pour into a baking dish, place the pan in hot water, and bake in a moderate oven until it is set.

## HONEY DROP CAKES

$\frac{3}{4}$  cup honey  
 $\frac{1}{4}$  cup butter or other fat  
 $\frac{1}{2}$  tsp. cinnamon  
 $\frac{1}{2}$  tsp. cloves  
 1 egg  
 2 cups whole wheat flour  
 $\frac{1}{2}$  tsp. soda  
 2 tbsps. water  
 1 cup raisins cut in small bits (if desired)

Heat the honey and fat until the fat is melted. While the mixture is warm, add the spices. When cool, add part of the flour, the egg well beaten, and the soda dissolved in the water. Add enough more flour to make a dough that will hold its shape. Drop in spoonfuls on greased tins and bake in a moderate oven.



# THE HEALTH QUESTION BOX

## Anemia — Low Blood Pressure — Mosquito Bites

W. L. St., Maryland, asks: 1. Are anemia and low blood pressure more prevalent in tidewater and coastal plain sections than in higher elevations?

2. What is the ultimate effect (if any) on the health when one is exposed year after year to mosquito bites of the non-malarial type?

*Answer.*—1. Mild degrees of anemia are very prevalent not only among people who inhabit the coastal plain but throughout the country. An examination made under the supervision of the writer of several thousand people at the first Chicago Health Exposition showed the hemoglobin of the average man to be 81 and that of the average woman to be 79, which is an average of 20 points below the normal. Lack of sunshine is doubtless a potent factor in producing this general poverty of blood, but there are doubtless a number of other factors that influence a large part of the population, particularly the lack of iron in the food supplies. Fine flour bread is lacking in iron because the bran and germ in which the iron of grain is chiefly found are removed and used as food for animals instead of human beings, with the result that the animals flourish while human beings suffer from the lack of the food minerals which only whole grains can supply. A deficiency of vitamin A is another dietary lack. This important vitamin not only promotes general nutrition but especially aids in the blood-building process.

2. Low blood pressure is a much less serious matter than is generally supposed; in fact, real cases of low blood pressure are quite rare. Low blood pressure is sometimes associated with very pronounced anemia and is

of course a natural result of serious losses of blood, but cases in which the systolic blood pressure is 100 to 105, though commonly considered low, are really not conditions of disease unless associated with such other symptoms as shortness of breath, swelling of the feet and marked lack of endurance; in fact, 100 to 110 may be considered normal blood pressure for the average person who is less than fifty years of age.

A study of the blood pressure of the Indians of the Southwest made many years ago showed the average blood pressure to be 100 to 110, often lower. In an examination made some years ago by the writer of four marathon runners, the respective systolic blood pressures were found to be 105, 100, 100, and 95. When the blood pressures were taken immediately after the race, the runner whose blood pressure was 95 before the race was found to be 100 fifteen minutes after the run was finished.

The heart is a pump. If it is able to do the work required of it at low pressure it will last longer.

2. We know of no scientific evidence that the bites of non-malarial mosquitoes are more harmful than needle pricks.

## Thyroid Disease

A. N. D., Missouri, asks: A friend seemingly is afflicted with thyroid gland trouble. What are the symptoms and treatment for thyroid gland trouble?

*Answer.*—If your friend is apprehensive that his thyroid gland is diseased, he should consult an experienced physician. There are various forms of thyroid disease which require different management. The form known as Grave's disease, in which the gland is excessively active, requires rest and careful dieting, and in some cases an operation is indicated. The

thyroid gland is one of the most important of the several glands concerned in the destruction of poisons found circulating in the blood stream. Some of these poisons are introduced with the food or otherwise and some are developed in the body through putrefaction of the food residues in the colon. Tea and coffee, tobacco, alcohol, and condiments are other poisons which burden the thyroid gland with unnecessary work.

The diet should consist exclusively of fruits, grains, nuts, tender shoots and succulent roots, which are the normal diet of man and which afford the sole sustenance of the higher apes. With the addition of milk, the various foods mentioned afford an ample supply of nutrients. Although theoretically not needed by adults, milk becomes practically a necessity because of the food deficiencies created by the numerous denaturing processes to which our modern foodstuffs are subjected.

In countries in which the soy bean is in general use, such as South China and some other Oriental countries, cow's milk is practically unknown, milk prepared from the soy bean fully taking its place. A recent analysis of soy bean milk shows its composition closely resembles that of human milk, which differs considerably from that of dairy milk, containing much less lime and more iron and sugar. Soy bean milk contains more than five times as much iron as does cow's milk and double as much iron as is found in human milk.

Soy acidophilus milk, made and distributed by the Battle Creek Food Company and the Home Milk Producers Association, the largest milk company in Miami, Florida, is much richer in vitamins than is cow's milk, containing double the quantity of vitamin A (2,000 units to the pint), six times as



much vitamin G, and a still greater preponderance of vitamin B.

Soy acidophilus milk has proven of great service to the quintuplets, who have used it continuously for more than two years, having been cured of a severe bowel infection from which they suffered when four months old. They have been kept in excellent health, free from bowel troubles, by its daily use. Each one of them takes a glassful of soy acidophilus milk every afternoon at four o'clock and uses an equal amount in connection with other meals.

### Aspirin — Garlic — Tomato Juice

W. G. E., Texas, asks: 1. Is aspirin a habit-forming drug? 2. Can any injury come from its use? 3. Is garlic a wholesome vegetable? 4. Is it any better than the onion? 5. In GOOD HEALTH, November, 1936, you say that orange juice contains twice as much vitamin as tomato juice. How does it compare with pineapple juice?

Answer.—1. Yes.

2. Yes. Heart depression and nervous disturbances.

3. Yes, but the odor of garlic is to most people highly offensive and hence its use can not be unqualifiedly recommended.

4. No. From the nutrition standpoint the onion is much preferable to the garlic, which is seldom used except in a very meager way as a flavor, but the onion is a real nutrient.

5. Orange juice affords a little more than twice as much vitamin C as does tomato juice, and pineapple juice one-third as much as orange juice.

Never again may blood of bird  
or beast,  
Stain with its venomous stream  
a human feast  
To the pure skies in accusation  
steaming.

Shelley, *Revolt of Islam*.

## New Health Aids for Mothers and Children

THE SOCIAL Security Act is on so extensive a scale that perhaps little attention has been paid to its benefits for mothers and children. It appropriates annually to the States \$3,800,000 for maternal and child health; \$2,850,000 for crippled children and \$1,500,000 for child welfare. These grants must be matched by the states receiving them.

Dr. Martha M. Eliot, of the Children's Bureau of the Department of Labor, describes in the *American Journal of Public Health* what is being done to carry out the provisions of the law. The various states have made necessary appropriations. Throughout, the preventive services are stressed. The maternal and child health program is entirely preventive. In the crippled children division care of such sufferers medically and surgically is arranged, but the act also authorizes measures to be taken in situations which might lead to crippling. Accordingly, in several states the fight against epidemics of infantile paralysis has been financed.

In regard to child welfare, attention has been directed toward social and economic conditions which might harm the child in its relation to its family and to the community. Thus the cost can be met of services for dependent, neglected and homeless children, and those in danger of becoming delinquent. The special aim is to provide in rural and semi-rural areas the type of care which has for many years been available in the larger cities. Many of the states have established maternity nursing services in rural communities and some also provide medical care as well. Maternal, infant and preschool conferences are held, midwife instruction and supervision are arranged, nutrition is taught, school health examinations are

held; there are programs for immunization and dental hygiene.

In most states there will be postgraduate education for physicians, dentists and nurses.

One of the things which should receive special attention in these training schools is the importance of protecting infants and children against the poisonous effects of tobacco smoke. Infants are often made seriously ill by being daily exposed for hours to an atmosphere contaminated with the poisonous fumes from a pipe or a cigar.—S.

## Glasses Which Go under the Eyelids

NEWSPAPERS and moving pictures have told the public about contact glasses. These fit against the eyeball. A comprehensive discussion of them is given by Dr. Ray K. Daily in the *Southern Medical Journal*. He says they have been known for nearly a hundred years, although it is only lately that they have become prominent in medical literature. They are separated from the ball by a thin layer of fluid, to which the lens owes its optical effect. A normal saline solution is put under the glasses but this is soon replaced by tears. There are advantages of convenience in the use of these glasses, and some artists and actors wear them to avoid the unsightliness of ordinary spectacles.

Contact glasses are superior to the others in cases of keratoconus, a cone-shaped deformity of the cornea. They improve the vision and may with long use, actually flatten the projecting part. In certain types of irregular astigmatism, they better the visual acuity decidedly. They present advantages in other eye conditions, including ametropia, in which there is imperfection in the refractive powers of the eye. They may serve for the prolonged application of medications to the cornea and have been recommended for acute glaucoma.—S.



## Carbohydrates— Starches and Sugars

(Continued from page 105)

quickly converts cane sugar into dextrose and levulose, the sugars found in fruits.

Malt sugar has many advantages over cane sugar. It is non-irritating, being native to the body, since it is constantly formed in the digestion of starch. Malt sugar also contains lime, iron and vitamins, all of which are lacking in cane sugar.

The manufacture of malt sugar for food was initiated by the writer more than forty years ago. The difficulty was to eliminate the bitter flavor which made the sirupy extracts of malt too unpalatable to employ as foods. Malt sugar is now made by several concerns and is sold both in syrup and powder form.

Reid has shown that maltose enjoys an additional advantage over ordinary sugar in that it is absorbed much more rapidly. This is especially true when the mucous membrane is diseased, as in intestinal catarrh. In such conditions malt sugar is much better utilized than any other forms of sugar. This fact explains the observation often made by physicians that patients who are easily able to eat farinaceous foods freely without difficulty and can even take malt preparations in very considerable quantity without experiencing any inconvenience, may be unable to eat the smallest amount of cane sugar without suffering seriously in consequence from formation of gas in the intestines.

Malt sugar is especially valuable as a food for invalids and children. It may be given to young infants advantageously and is far preferable to cane sugar. It is most useful in cases of constipation in infants because of its mild laxative properties.

Persons suffering from gastric hyperacidity, or peptic ulcer, are usually able to eat malt sugar in the form of Maltose, or Malt Honey, without suffering any inconvenience.

(To be continued)

## Health Problems of the Trailer

THE AUTO TRAILER has brought various new social, economic and sanitary problems. Apparently a considerable part of our population is going to spend much or all of its time on wheels. It may thus escape local taxation; children are numerous in this caravan, and the question of their schooling arises. The Federal authorities call particular attention to the health issues involved. Water and milk supplies must be pure but the greatest difficulty arises concerning the disposal of wastes.

The newer vehicles contain small toilet compartments with chemical solutions for disinfection. But facilities are usually lacking for the disposal of the contents. The suggestion is made that state or county departments of health provide combined comfort stations and places for the disposal of wastes.

## Injury from Industrial Noises

NOISE is a major hazard of modern existence and an important factor in excessive fatigue. This latter may bring on chronic ill health and premature old age. These statements were made by Dr. Foster Kennedy, professor of neurology at Cornell Medical School, before the Academy of Medicine, New York. He said further that from sixty to eighty per cent of the population have ear trouble caused by mechanical noises. These should be treated in industrial plants as hazards, along with gases, toxic liquids, dust, bacteria and chemical rays.

A sudden noise, such as an explosion or whistle, is particularly injurious because it comes unexpectedly and therefore places a greater strain on the nervous system. "The first effect of noise is disturbance of excitation and irritation. These may psychically cause loss of temper and play a part in quarrels. In attempts to overcome

the effects of noise, great strain is put upon the nervous system, leading to neurasthenic and psychosthenic states. Long before the emotions are disturbed, certain changes take place, such as heightened pulse rate, heightened blood pressure and some irregularities in heart rhythm."

Dr. Kennedy declared that elimination of noise was as important as such problems as lighting, heating and ventilation, and would actually be profitable to employers (*The New York Times*).

## Early Maturity Means Premature Old Age

LORD DAWSON, the famous physician, spoke in the House of Lords on the national physique. He said that the average boy and girl of today were taller and heavier than those of former generations but mere bulk was no evidence of fitness. Further information along this line is given by Koch, writing in a German medical weekly, which is quoted by the *Journal of the American Medical Association*. He too directs attention to the fact that measurements in recent years have revealed an increase in the height of children. Moreover, the second dentition, the change in voice and puberty occur earlier.

However, as the size of adults has not noticeably increased in this period, Koch maintains that the alteration is merely in the time of development. He cites another authority who likewise declares that the duration of growth has been shortened without affecting the adult status. Koch by means of various diets and by ultra-violet radiation, achieved great differences in the body of rats. It is known that young females have more primordial ovarian follicles than older ones. In these rats the number of follicles was lowest where growth had been most rapid. It was reasoned therefore that earlier development brings on a premature aging process.—S.



# THE POSTURE PANEL

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## A Rational Method of Treating Mental Patients

THE TIDE of mental disease continues to rise in this country and more and more millions must be spent annually on the care of such patients. New hospitals must be built from time to time. In some European countries this situation has been met in part by boarding certain types of cases in families. This has been the practice in Scotland for eighty years. About five per cent of all mental patients are thus provided for in that country. At first they were mostly imbeciles but now many high-grade defectives are also boarded out. The two classes are never kept in the same house. Not more than four are taken in one household.

Many patients live in cities, although a farm offers advantages, especially for men. The pay averages about \$3.50 per week. Of course the defectives may help appreciably with their labor, and some women take in such charges for the sake of the companionship. Patients may stay several years in the same family.

Holland and England are also employing this plan with good results. Of course the patient is far happier living a normal life than when confined in an institution. The saving to the taxpayer is also worth considering (*Lancet*).

Of course only certain types of mental cases can be managed in this way, but these types constitute quite a large proportion of the mentally infirm who apply for institutional care.

It takes at least thirty to forty leaves on a peach tree to produce food enough to develop one good peach.

Our enlightened posterity will look back upon us who eat oxen and sheep, just as we look back on cannibals.—Winwoode Reade, *The Future of the Human Race*.



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# In Which We Answer a Question Often Asked

**M**ANY people who have never visited Battle Creek ask the question: "What is the Battle Creek Sanitarium?"

The answer is that the Battle Creek Sanitarium is primarily an up-to-date, scientific medical institution.

On the staff are fifty physicians, several of them of international reputation. Treatment of nearly two hundred thousand patients for almost every known type of disease over a period of fifty years, has given the Sanitarium a background of knowledge and experience probably surpassed by no other medical institution.

The Sanitarium has brought together under unified control all the resources that modern medical science has to offer in the diagnosis and treatment of disease. To this end no expense has been spared. Members of the staff are always on the alert for new developments and are quick to employ them as soon as they have proved their value.

Experience has shown that there are three distinct types of benefits that medicine can confer upon mankind:

*First:* Health education—that is, teaching people how to live in order that their bodies may function with maximum efficiency, thereby avoiding disease and premature old age.

*Second:* Taking bodies that have been abused by improper living and, by corrective measures, restoring damaged parts to normal functioning.

*Third:* Alleviation of the suffering and extension of the life expectancy of those af-

flicted with incurable diseases, by means of carefully controlled treatment and a program of right living

This calls for many and varied applications of modern medicine. Diet and advanced therapeutic methods constitute a very important part of the treatment, but surgery has its place and is used when necessary. A complete modern hospital is part of the Sanitarium equipment.

To the Battle Creek Sanitarium medical science owes many fundamental discoveries of great importance. Research work is continually in progress. Two scientific laboratories are maintained for the study of nutritional problems and the relations of foods to disease. The X-ray department is recognized as one of the most complete in existence and out of it have come many important advances in technique and treatment.

The program of diagnosis, treatment and health by training that is known as the Battle Creek Idea,

has penetrated to the most remote corners of civilization. To the Battle Creek Sanitarium, therefore, come thousands of people each year—from all walks of life and from all parts of the world—with assurance that here they will receive all the benefits that modern medical science has to offer.

Those who desire more detailed information about the Battle Creek Sanitarium and its methods are invited to write for descriptive literature. Address—

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*Looking through the Magnificent Colonnade,  
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## The Battle Creek Sanitarium